FILLING ORIFICE WITH A PUSHBUTTON CLOSURE

The present invention relates to steam irons.

Irons equipped with a water reservoir having an orifice allowing the user to fill it are known. This orifice is usually disposed at the front of the iron so that the liquid does not run out when iron is placed on its heel.

But during ironing movements the water in the reservoir is agitated and could flow out through the filling orifice if provisions were not made to avoid or limit this disadvantage.

For this reason, large-sized filling orifices are supplemented by baffles as explained in the patent FR2677674, or are closed by a large articulated or sliding movable shutter as described in the patent DE10015078. When space is lacking to have an orifice of sufficient size, a filling drawer can serve as a funnel and at the same time ensure closing. However baffles limit the water flow, movable shutters and drawers require for their opening a minimum of attention and care due to their fragility, owing to the fact that they must be pulled by hand and occupy a position outside the body of the iron during opening.

The invention which follows has for its object a steam iron having a water reservoir, the closing of the filling orifice

of said water reservoir not having the cited disadvantages, and being easy and simple to open and close.

The goal of the invention is achieved by a pressing iron, comprising a water reservoir having a filling orifice, the orifice being provided with a rigid cover having a closing face visible in the orifice, by the fact that the cover has retaining means such that a first push substantially perpendicular to the visible face of the cover can open the orifice, said means retaining the cover depressed in the orifice while allowing the filling of the reservoir with water, the retaining means being released and the orifice being again closed under the action of a second push on said visible face of the cover.

The cover is thus like a pushbutton that one depresses to open the orifice and to fill the reservoir, and that one releases by a new pressure to close the orifice. The operation is very simple and does not require particular attention nor precautions.

Advantageously, the cover is retracted in the orifice during filling.

It thus presents no fragility.

Preferably, the orifice being in open position, a path intended for the filling water is provided around the cover.

Advantageously the cover in closed position bears on a peripheral internal face of the orifice, under the action of a spring.

The cover then acts like a one-way valve thus preventing water from the reservoir from flowing towards the outside under the influence of movements of the iron.

Preferably the orifice having a body, the cover carries along in translation a part movable in rotation provided with teeth intended to come in correspondence with complementary teeth of the body when the orifice is opened, the teeth of the movable part sliding on complementary parts of the cover when said cover is pushed.

The body of the orifice can be a part added to the iron or be integrated into the body of the iron or of the water reservoir.

At each push on the cover, the part movable in rotation turns by a notch and is positioned to successively occupy a depressed position where it retains the cover, and a released position where the cover is closed against the interior edge of the orifice.

The invention will be better understood in view of the example hereafter and of the annexed drawings.

Figure 1 is a longitudinal pictorial view of an iron having a filling orifice according to the invention.

Figure 2 is a longitudinal cross-sectional view of a filling orifice according to the invention, the orifice being closed.

Figure 3 is a transverse cross-sectional view of the filling orifice of figure 2, the orifice being open.

Figure 4 is a longitudinal view of the body of the orifice of figure 2.

Figure 5 is a view of the cover closing the orifice of figure 2.

Figure 6 is an exploded view showing the part movable in rotation, the spring and a support part of the spring.

In a preferential realization visible in figure 1, iron 1 has a soleplate 2 and a casing body 3 in which a water reservoir 4 is housed.

The reservoir is capable of being filled with water through an orifice 5.

Orifice 5 has a body 6 in which a passage 61 for filling water, better seen in figure 3, opens towards the outside of iron 1. Orifice body 6 is integrated at the front of the iron and is fixed on water reservoir 4 in a watertight manner due to a joint 62 represented in figure 2. Body 6 visible in cross section in figures 2 and 3 carries internally a crown of long teeth 64 directed downwards, providing between them passages 65 having parallel edges. Teeth 64 have at their end a form of sawtooth notch 641 visible in figure 2.

A cover 7 disposed in orifice 5 has a face 71 visible and accessible from the outside of iron via passage 61. The cover is able to close passage 61 as represented in figure 2. Extension 711 of face 71, easy to distinguish in figure 3, then bears against internal wall 63 peripheral to passage 61 of body 6. Cover 7 internally carries a crown of teeth 72 directed toward the bottom of figures 2, 3 and 5. It is immobilized in rotation by plugs 73 guided in translation by passages 65 located between teeth 64 of body 6.

A part 8, of circular cross section, is capable of turning around an axis carried by the cover. It is firmly attached to this cover 7 with a play in translation and carries at its periphery a crown of radial teeth 81 whose point is directed to the top in figures 2, 3 and 6. Teeth 81 are long enough to

be guided by passages 65 of body 6 over the entire length of teeth 64 of body 6, and escape this guidance in rotation when movable part 8 is pushed downwards at the same time as cover 7 and when they are beyond the end of teeth 64.

A spring 9 bearing on a fixed part 10 firmly attached to body 6 returns in translation movable part 8 upwards in the figures.

Spring 9, the crowns of teeth 64, 72 and 81 as well as part 8 have the same axis, along which cover 7 is capable of being displaced.

In the position illustrated in figure 2 spring 9 raises movable part 8, which by its teeth 81 raises cover 7 whose wall 711 is in contact with the internal peripheral wall 63 of body 6 and closes the orifice by blocking passage 61. Teeth 81 of movable part 8 are in relation with teeth 72 of cover 7. But cover 7 and the movable part 8 are immobilized in rotation respectively by plugs 73 and teeth 81 sliding in passages 65 of body 6. Teeth 81 and teeth 72 have an offset so that they rest only on an inclined side in a preferential direction.

When the user wants to fill reservoir 4, she presses on cover 7. The force transmitted via teeth 72 of the cover to teeth 81 of part 8 compresses spring 9. The cover sinks into the orifice and teeth 81 escape guidance by passages 65. Part 8

pivots around its axis until teeth 72 and 81 are in perfect correspondence.

When the user releases the force on cover 7, spring 9 pushes back part 8. But teeth 81 are then engaged by teeth 64 of body 6 and slide on their sides while causing part 8 to pivot to be positioned at the bottom of notches 641. Cover 7 is retained in the position of figure 3 where the orifice is open. Teeth 81 of part 8 are in contact with a side of teeth 72 of cover 7. The entry of filling water is carried out along a path represented by the arrow F of figure 3, from passage 61 around cover 7 between teeth 64, through passages 65, to reservoir 4.

To reclose the filling orifice, the user presses on cover 7 through passage 61. The force transmitted via teeth 72 of the cover to teeth 81 of part 8 compresses spring 9. The cover descends in the orifice and teeth 81 escape notches 641. Part 8 pivots around its axis and teeth 81 are put in complete correspondence with teeth 72 of the cover.

When the user releases the force on cover 7, spring 9 pushes back part 8. But teeth 81 are then engaged by teeth 64 of body 6 and slide on sides 642 while causing part 8 to pivot to be positioned opposite passages 65 between teeth 64 of the body. There is no longer anything opposed to the rising of

part 8 and of the cover 7 under the action of spring 9 and the orifice returns to the closed position of figure 2.

In this closed position, water in the reservoir 4 which would be projected by the movements of iron towards the orifice, would run up against the internal face of cover 7 while adding to that of spring 9 a force for pressing cover 7 against internal peripheral face 63 of body 6. The cover behaves as a one-way valve.

Usefully, extension 711 of face 71 of the cover, or internal peripheral face 63 of body 6 coming in contact with one another, can be provided with a complementary seal.

By these means, the user can open or close the filling orifice in a very simple way by the same easy to perform gesture, and the device presents a large passage for water for filling the reservoir.